#### 4.3.4.2.6 *Biological Resources*

Construction of the ceramic immobilization facility would require 20 ha (49 acres) of land at each of the DOE sites analyzed. This includes areas on which plant facilities would be constructed, as well as areas used for construction laydown. Land requirements and impacts on biological resources would be less if existing facilities were used for portions of the ceramic immobilization operations. Consultation with USFWS and State agencies would be conducted at the site-specific level as appropriate to avoid potential impacts to threatened and endangered species, and other protected species and habitat.

*Hanford Site*

It is assumed that a new ceramic immobilization facility would be located west of the 200 East Area. Impacts to terrestrial resources, wetlands, aquatic resources, and threatened species are discussed below.

**Terrestrial Resources.** Construction and operation of the ceramic immobilization facility would result in the disturbance of terrestrial habitat equaling about 0.01 percent of Hanford. This includes areas on which plant facilities would be constructed as well as areas that would be revegetated following construction. Vegetation within the assumed site would be destroyed during land clearing operations. The assumed facility location falls within the sagebrush/cheatgrass or Sandberg's bluegrass community. Sagebrush communities are well represented on Hanford, but they are relatively uncommon regionally because of widespread conversion of shrub-steppe habitats to agriculture. Disturbed areas are generally recolonized by cheatgrass, a nonnative species, at the expense of native plants.

Construction of the ceramic immobilization facility would affect animal populations. Less mobile animals within the project area, such as reptiles and small mammals, would not be expected to survive. Construction activities and noise would cause larger mammals and birds in the construction and adjacent areas to move to similar habitat nearby. If the area to which they moved was below its carrying capacity, these animals would be expected to survive. However, if the area was already supporting the maximum number of individuals, the additional animals would compete for limited resources which could lead to habitat degradation and eventual loss of the excess population. Nests and young animals living within the assumed site may not survive. The site would be surveyed as necessary for the nests of migratory birds prior to construction. Areas disturbed by construction, but not occupied by facility structures, would be of minimal value to wildlife because they would be maintained as landscaped areas.

Activities associated with facility operations, such as noise and human presence, could affect wildlife living immediately adjacent to the ceramic immobilization facility. These disturbances may cause some species to move from the area. Disturbance to wildlife living adjacent to the facility would be minimized by preventing workers from entering undisturbed areas.

**Wetlands.** Construction and operation of the ceramic immobilization facility would not affect wetlands since no wetlands exist near the assumed facility location. Groundwater would be used and wastewater would be discharged to evaporation/infiltration ponds; therefore, wetlands would not be affected.

**Aquatic Resources.** Construction of a ceramic immobilization facility at Hanford would not impact aquatic resources since there are no surface water bodies sufficiently near the assumed facility location so as to be directly affected by construction activities or indirectly affected by runoff. During both construction and operation, water would be withdrawn from the Columbia River through an existing intake structure. Since the volume of water included represents a small percentage of the flow of the river, impacts to aquatic resources would be minimal. Wastewater would be discharged to evaporation/infiltration ponds; therefore, aquatic resources would not be affected.

**Threatened and Endangered Species.** It is unlikely that federally listed threatened and endangered species would be affected by construction and operation of the ceramic immobilization facility; however, sagebrush habitat would be disturbed. The sagebrush community is important nesting/breeding and foraging habitat for several State-listed and candidate species such as the ferruginous hawk, loggerhead shrike, western burrowing owl, pygmy rabbit, western sage grouse, sage sparrow, and sage thrasher. Preactivity surveys would be conducted as appropriate prior to construction to determine the occurrence of plant species or animal species in the area to be disturbed.

*Nevada Test Site*

It is assumed that the ceramic immobilization facility would be located in the Frenchman Flat area of NTS. Impacts to terrestrial resources, wetlands, aquatic resources, and threatened species are discussed below.

**Terrestrial Resources.** Construction and operation of the ceramic immobilization facility at NTS would result in the disturbance of terrestrial habitat equaling about 0.01 percent of NTS. Vegetative cover within the assumed facility location, which is primarily creosote bush (Figure 3.3.6–1), would be destroyed during land clearing operations. Creosote bush communities are well represented on NTS.

Construction of the ceramic immobilization facility would affect animal populations. Less mobile animals within the project area, such as reptiles and small mammals, would not be expected to survive. Construction activities and noise would cause larger mammals and birds in the construction and adjacent areas to move to similar habitat nearby. If the area to which they moved was below its carrying capacity, these animals would be expected to survive. However, if the area was already supporting the maximum number of individuals, the additional animals would compete for limited resources which could lead to habitat degradation and eventual loss of the excess population. Nests and young animals living within the assumed site may not survive. The site would be surveyed as necessary for the nests of migratory birds prior to construction. Areas disturbed by construction, but not occupied by facility structures, would be of minimal value to wildlife because of the difficulty in establishing vegetative cover in a desert environment.

Activities associated with operations, such as noise and human presence, could affect wildlife living immediately adjacent to the facility. These disturbances may cause some species to move from the area. Disturbance to wildlife living adjacent to the facility would be minimized by preventing workers from entering undisturbed areas.

**Wetlands.** Construction and operation of the ceramic immobilization facility would not affect wetlands because there are no wetlands near the assumed facility location.

**Aquatic Resources.** Construction and operation of the ceramic immobilization facility would not affect aquatic resources because there are no permanent surface water bodies near the assumed facility location.

**Threatened and Endangered Species.** The threatened desert tortoise is a federally listed species that could be affected by construction of the ceramic immobilization facility at NTS. Construction activities such as land clearing operations, trenches, and excavation could pose a threat to any tortoises residing within the disturbed area. An increase in vehicle traffic is an additional hazard to the tortoise. Measures designed to avoid impacts to the desert tortoise from previous projects at NTS have been implemented as a result of a Biological Opinion issued by the USFWS (NT DOI 1992b:8-15). Recommended mitigation measures included providing worker training, putting restrictions on vehicle speeds and off-road movement, conducting clearance surveys prior to surface disturbance, approving stop work authority if tortoises are found within work areas, removing tortoises from roadways and work areas, placing permanent and temporary tortoise-proof fencing around trenches, landfills, and treatment ponds, inspecting trenches, and having biologists survey when heavy equipment is in

use. The USFWS would be consulted, and USFWS recommendations would be implemented if NTS were selected as the location for the ceramic immobilization facility.

[Text deleted.] Any listed plant species (Table 3.3.6–1) located within the construction area would be lost during land-clearing activities. Preactivity surveys would be conducted as appropriate prior to construction to determine the occurrence of these species in the area to be disturbed.

During facility operation, vehicle traffic would pose a hazard to the desert tortoise similar to the hazard caused by current traffic. Extensive measures, including personnel training, are presently being taken to ensure that drivers on the NTS avoid the tortoise. [Text deleted.] Groundwater levels in Devils Hole cavern are not expected to change due to operation of the ceramic immobilization facility (Section 4.3.4.2.4); therefore, impacts to the Devils Hole pupfish are not expected. Similarly, other rare endemic aquatic species found in the Ash Meadows area would not be affected.

***Idaho National Engineering Laboratory***

It is assumed that the ceramic immobilization facility would be constructed within an undeveloped portion of the ICPP area. The ICPP area falls within the big sagebrush/thickspike wheatgrass/needle-and-thread grass community. Impacts to wildlife would be limited to smaller mammals and some birds and reptiles which could be displaced or suffer mortality. Larger mammals are excluded from the assumed facility location by the perimeter fence and thus would not be impacted. Noise associated with construction could cause some temporary disturbance to wildlife, but this impact would be minimal since animals living adjacent to the area would have already adapted to similar disturbances. Due to the lack of wetlands or aquatic resources near the assumed facility location, these resources would not be affected by construction or operation of the ceramic immobilization facility. Since the facility would be located within the ICPP security area, impacts to threatened and endangered species would not be expected since they are not present at the ICPP.

***Pantex Plant***

It is assumed that the ceramic immobilization facility would be located within Zone 4 which is a developed area with minimal natural vegetation. Disturbance to wildlife would be limited due to the disturbed nature of the facility location; however, small mammals and some birds and reptiles could be displaced by construction. Since the area does not contain any wetlands or aquatic resources, these resources would not be affected by construction of the facility. During operation, wastewater would be discharged to a site playa through an NPDES-regulated outfall. The additional wastewater could lead to an increase in open water near the outfall, as well as a change in plant species composition. No federally listed threatened or endangered species would be affected by construction or operation of the facility. Although the facility location has been disturbed, it is possible that the State-listed Texas horned lizard could be present. Preactivity surveys would be conducted as appropriate prior to construction.

***Oak Ridge Reservation***

It is assumed that the ceramic immobilization facility would be located about 3 km (2 mi) east of the K–25 area of ORR. Impacts to terrestrial resources, wetlands, aquatic resources, and threatened and endangered species are discussed below.

**Terrestrial Resources.** Construction and operation of the ceramic immobilization facility at ORR would result in the disturbance of terrestrial habitat equaling about 0.1 percent of ORR. Vegetation within the area to be developed would be destroyed during land clearing. Vegetation cover within the assumed site is predominantly oak-hickory forest or pine and pine-hardwood forest (Figure 3.6.6–1). While both types would be affected by construction, it is likely that a greater area of pine and pine-hardwood forests would be removed. This type of

forest is more heavily concentrated in valleys where most of the development would occur. Oak-hickory forests are typically found on ridges. Both forest types are common throughout ORR and within the region.

Construction of the proposed facility would affect animal populations. Less mobile animals within the assumed project area, such as amphibians, reptiles, and small mammals, would not be expected to survive. Construction activities and noise would cause larger mammals and birds in the construction and adjacent areas to move to similar habitat nearby. If the area to which they moved was below its carrying capacity, these animals would be expected to survive. However, if the area was already supporting the maximum number of individuals, the additional animals would compete for limited resources which could lead to habitat degradation and eventual loss of the excess population. Nests and young animals living within the assumed site may not survive. The site would be surveyed as necessary for the nests of migratory birds prior to construction. Upon completion of construction, revegetated areas would be of minimal value to most wildlife since they would be maintained as landscaped areas.

Activities associated with operation, such as noise and human presence, could affect wildlife living immediately adjacent to the proposed facility. These disturbances may cause some species to move from the area. Disturbances to wildlife living adjacent to the facility would be minimized by preventing workers from entering undisturbed areas.

**Wetlands.** Because the majority of the area in which the proposed facility would be located is upland, it is expected that direct impacts to wetlands could be avoided. Implementation of erosion and sediment control measures would control secondary impacts. Since an existing intake structure would be used during both construction and operation, it would not be necessary to disturb wetlands along the Clinch River. However, a new wastewater discharge structure could be required on East Fork Poplar Creek. Depending on its location, this structure could displace some wetlands along the creek. Any unavoidable impacts to wetlands would be mitigated.

During construction and operation, discharges would be directed to East Fork Poplar Creek. Discharges would have a minimal impact on the flow of the stream and are not expected to affect associated wetlands. All wastewater discharges would be treated as necessary to meet NPDES permit requirements.

**Aquatic Resources.** Construction and operation of the ceramic immobilization facility could cause water quality changes (primarily sediment loading and resulting turbidity) to Bear Creek, Grassy Creek, or Ish Creek as a result of soil erosion. Soil erosion and sediment control measures would be implemented to control erosion. Water requirements during both construction and operation would be met by existing site sources. Since a new intake structure would not be required, direct disturbance to aquatic resources in the Clinch River would not occur. Water withdrawal during construction and operation would represent a very small percentage of the Clinch River's average flow and would have little affect on the flow of the river. Increases in impingement and entrainment impacts would, therefore, be minimal and would be unlikely to affect fish populations in the river.

During construction and operation, wastewater would be discharged to East Fork Poplar Creek. This could require the construction of a new discharge structure which would temporarily disturb aquatic habitat in the vicinity of the outfall. The small volume of wastewater discharged to the stream would not be expected to impact aquatic resources during either construction or operation. In addition, NPDES discharge requirements would be met.

**Threatened and Endangered Species.** It is unlikely that federally listed threatened and endangered species are expected to be affected by construction of the ceramic immobilization facility. Land-clearing activities may destroy State protected plant species found within or adjacent to disturbed portions of the assumed site including pink lady's-slippers, fen orchid, tubercled rein-orchid, American ginseng, purple fringeless orchid, Canada lily,

and golden seal. The Tennessee dace is sensitive to siltation and actively seeks clean gravel for spawning. An increase in amount or duration of sediment runoff to Ish Creek or Bear Creek during facility construction could impact this fish species. Preactivity surveys would be conducted as appropriate prior to construction to determine the occurrence of special status species in the area to be disturbed. No additional impacts are expected during operation of the facility.

[Text deleted.]

***Savannah River Site***

It is assumed that a new ceramic immobilization facility would be constructed within the F-Area, which is one of the highly developed industrial areas of SRS. Impacts to terrestrial resources would be minimal. Noise associated with construction could cause some temporary disturbance to wildlife, but this impact would be minimal since animals living adjacent to the F-Area would have already adapted to similar disturbances. There would be no direct impacts to wetlands or aquatic resources from construction of the facility. Secondary impacts from stormwater runoff would be controlled by implementation of a soil erosion and sediment control plan. Operational impacts to wetlands and aquatic resources would be minimal since water would be taken from existing sources and discharged via NPDES-permitted outfalls and would involve minor volumes. Construction and operation of the ceramic immobilization facility is not expected to impact threatened and endangered species due to the developed nature of the assumed facility location. Although suitable foraging habitat for the red-cockaded woodpecker exists in the area, the woodpecker colonies are located far enough from the site so that this species would not be directly affected by this action.